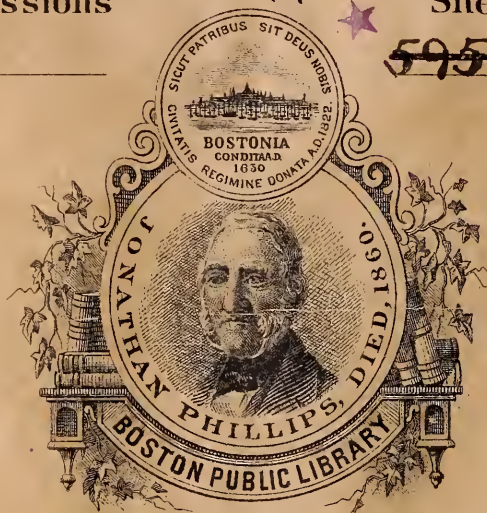


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L O N D O N:

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MDCCLXXII.

PUBLIC LIBRARY
OF THE
CITY OF BOSTON

Interesting and useful OBSERVATIONS, by
Fahrenheit's Thermometer, on board the
ship Seine, on a voyage from Havre to
New-York, by a gentleman passenger.

November, 1819.		Time.	Latitude.	Longitude.	Temp of Air.	Temp. of Water.	Wind.
12	12, M		49,29	7,08	50	52	NE*
13	—		48,19	11,12	52	55	NNW
14	—		48,48	11,56	50	54	W
15	—		47,15	13,46	51	53	NbyW
16	—		47,12	15,16	52	55	NW
17	—		45,36	18,57	52	56	NNE
18	—		41,08	24,04	54	57	NE
19	—		43,28	29,16	56	59	ENE
20	—		43,21	35,38	66	62	ESE
21	—		—	—	—	—	—
22	—		43,15	40,24	64	66	SSW
23	—		43,13	44,44	66	67	SSE
24	—		43,52	48,04	68	64	S
25	3, PM		43,52	48,34	62	60	S
26	5		43,52	48,40	60	58	S
27	7, AM		44,00	49,00	50	56	Nwbyw
28	12		44,27	49,44	49	54	W
29	3, PM		44,27	50,00	50	52	W
30	12		44,58	50,27	45	42	W†
31	3, AM		43,34	51,10	39	36	W†
32	12		43,54	51,20	42	37	wbyN†
33	—		42,58	52,18	50	46	ssw†
34	—		43,04	55,44	62	52	S
35	—		42,27	59,46	64	60	S
36	8, AM		42,07	61,06	60	63	S
37	12		42,07	61,09	54	62	N
38	12		41,17	65,42	44	61	SE
39	5, PM		41,17	66,00	43	58	NNE
40	8		41,17	66,20	46	58	NNE
41	12, PM		41,10	67,00	40	55	NNE
42	12, M		40,55	68,28	48	58	SSE
43	—		40,11	70,17	47	51	N

Stationers

* In the Channel.

† Bank of Newfoundland.

TO THE RIGHT HON.

THE EARL OF
HILLSBOROUGH,

HIS MAJESTY'S
PRINCIPAL SECRETARY OF STATE
FOR THE AMERICAN DEPARTMENT.

MY LORD,

YOUR Lordship, ever attentive to the welfare of his Majesty's American subjects, and ready on all occasions to shew your zeal to support their interests, and render them opulent and prosperous, cannot but sympathize with the many unfortunate adventurers who are so

A 2

deeply

deeply and frequently distressed by the calamities which every year befall vessels navigating on the Western Atlantic Coast, especially in the New Bahama Channel, and in the mouth of the Gulf of Mexico, opposite the Island of Cuba, on the Martiere rocky reefs and sand-banks.

Your Lordship's great vigilance and humanity are clearly evinced by his Majesty's orders, (with the execution of which I was honoured by your Lordship in 1764) for making discoveries with regard to those seas, and for carrying on a regular survey of the countries to which they set bounds: in promoting which necessary and important undertaking your Lordship's prevailing inclination (that of DOING GOOD) appears too fully to admit a doubt.

Permit me to add, my Lord,
that

that THIS MOTIVE animated me likewise in the performance of that duty I entered upon in obedience to his Majesty's commands, in gratitude to your Lordship for the confidence reposed in me, and with a real affection for my fellow subjects.

From the materials which these expeditions afforded me, and which I have had the honour to lay before your Lordship, I have since (with your Lordship's permission) compiled this little Treatise, which I have called the ATLANTIC PILOT, as being calculated for the safer conduct of ships in their navigation from the Gulf of Mexico along Cuba and the Martieres, through the New Bahama Channel, to the northern part of his Majesty's dominions upon the continent of North America, and from thence to Europe.

This

This small (but, for its utility, I hope not inconsiderable) performance, I humbly beg leave to submit to your Lordship's protection and patronage, together with its Author, who has the honor to subscribe himself, with the utmost deference,

My Lord,

Your Lordship's

Most obedient, and

Most humble servant,

William Gerard de Brahm.

ADVERTISEMENT.

THE following directions, which the ATLANTIC PILOT presents to the public, are from authentic discoveries on the promontory formerly called Tegesta, now His Majesty's southernmost province on the continent of North America, known by the name of East Florida, terminating the southern extent of the Western Atlantic or North American coast: Herein the former condition of the said promontory is deduced, by reasonable conclusions, from its present appearance; its climate and natural products are made known; and, what is more essential, and universally wanted, the tracing of the Florida, commonly called Gulf stream, between the Havannah on Cuba, and the Martiere islands along the Western Atlantic coast, as far

as

as $45^{\circ} 30'$ north latitude, and 35° west longitude from the meridian of London, is obtained by observations and actual surveys made by

William Gerard de Brahm, Esq.

His Majesty's Surveyor General of the
Southern District of North America,

From the year 1765, to the year 1771.



FROM THE
LATE DISCOVERIES
BY THE
ATLANTIC PILOT.

CAPE Florida has not, in appearance to transient navigators, the characteristic of one of the southern capes of the promontory of East Florida, (in former time scarcely known to the world, save by its bare name and existence, unless, in parts, by those who in their navigation near it became unfortunate by suffering shipwreck.) I should not contend with such as refuse or hesitate to admit it among the
B number

number of capes, because it almost joins (when discovered from the southward) a ridge of islands on its south, with scarce less visible distinction than it joins the continent to its north: and indeed it has, in all probability, been in former ages part of the main. This, by the plan I have sketched of its probable antient figure, drawn from the conclusions obtained by judging of its present shape and condition, I endeavour to shew more fully, however, by cause of the last bend or course of the Florida stream at this place, where it enters, after several changes in its course, the New Bahama channel with a N.b.E. direction; by cause of the inlet being here made by force of the said stream into Hawke channel; (which channel runs from latitude $25^{\circ} 35'$, to $24^{\circ} 25'$, contains $1^{\circ} 43'$ difference of longitude, and $1^{\circ} 10'$ difference of latitude, and has its bed between the Martier reefs and shoals on its south, and the Martier islands to its north;) also by cause of this place being at present the south end of the western Atlantic coast, and the beginning of the northern main forming the gulf of Mexico, which both meet here in an angle of 150° ; and likewise because most vessels departing from the Havannah on Cuba, or Panna Matance, if properly laid up, discover generally this place first, which is their criterion of ha-
ving

ving passed the Martier reefs; and they may hence with safety continue standing northward: here they are sure to be in the entrance of the New Bahama channel, and take from thence the benefit of the Florida stream through the said channel into the Atlantic ocean: for all which reasons I think myself under the obligation to rank this place among the capes, and particularise it as such in my General Hydrogeographical, as also in my Special Hydrographical Maps.

Cape Florida is situated in north latitude $25^{\circ} 42' 42''$; and in west longitude, from the London meridian, $81^{\circ} 00' 19''$. The sun's and magnetical amplitudes differ here with 6° east variation of the compass. All these parts, at present distinguished by the appellations of Cape Florida, Martier Islands, Martier Shoals, and Martier Reefs, do appear to have been in times past contiguous, forming two peninsulas on the south end of that promontory, fortified as it were against the Florida stream by broken islands, which contain near forty miles in longitude, and twelve miles in latitude, known this day by the name of Dry Tortugas; and by a reef, out of sight of any land west of these islands, known by the name of the Tortuga Bank. Of the southernmost peninsula, whose isthmus now constitutes

Cape Florida, there remains only the trace among the shoals and reefs. Of the northern peninsula, whose isthmus exists west of Sandwich Gulf, there are extant many valuable islands, besides the tract of its whole shape. Between these two peninsulas and the main are, to this day, parts of one river, called Grant's Lake, and the whole channel of another, called Hawke Channel, both issuing, viz. the former from the northward of (the formerly called Island, now Peninsula) Larga; and the other out of Sandwich Gulf: and both with a parallel course, (viz. Grant's Lake, after sweeping the north beach of the southern peninsula, and south shore of the main; and Hawke Channel, after watering the south of the northern, and the north shore of the southern peninsulas) emptied themselves, to the north and south of Dry Tortugas, into the gulf of Mexico, and its stream. The islands still in being, as remnants of the northern peninsula, are many, and go by the general name of Martier Islands, or commonly the Keys, whose original Spanish names are not all known, or which never have been named: of such the remarkable and nameless shall now be distinguished with the proper names, and run thus, viz. from north-eastward to south-westward, Biskaino, Oswald, Laurence, Los Paradizos, Soldiers, Knox, Pollock, Pownall, Elliot, Jennings,

nyns, Fox, Stephens, Bull, Wright, Matacombe, la Mofa, Boys, Matance, (signifying *Massacre*, from an unhappy French crew, wrecked on Matacombe, and said to have been massacred thereon by the Calloofa Indians) Jenkinson, Dysons, Townshends, Coopers, Bradshaw, Matacombe la Viega, Vivera, Reynolds, Ellis, Vacas, Newcastle, Rice, Jennings, Robinson, Roberts, Littleton, Glen, Oglethorp, Edwards, Fitzherbert, Huefo, and the Tortugas. Huefo is the south point of the former northern peninsula, as the shoal of Sombreros, with its barren sand-hills, is the south point of the southern peninsula. Between Huefo and the Tortugas continues the former creek, in very good condition, situated in latitude $24^{\circ} 25'$, and in $82^{\circ} 53' 29''$ west longitude from the meridian of London, where the magnetical differs $6^{\circ} 25'$ east from the solar amplitude: it is known by the name of Egmont Channel, and affords a very good passage to and from Pensacola and places contiguous. An E.N.E. moon makes there high water: the rise and fall of flood and ebb is $3\frac{1}{2}$ feet at neap tide, and $6\frac{1}{2}$ feet at full and change: the best water lies on the east side of the channel, which is five miles in length, bears S.S.E. and N.N.W. and where narrowest, is a quarter of a mile wide: it floods in this channel at times from

from south to north five hours, and ebbs seven ; at other times it floods seven hours moderately, so that a vessel with a leading wind may easily stem its current : but it ebbs five hours from north to south, with precipitation, across the Huefo banks, and sets over upon the Tortuga shoal, so that a vessel cannot with a leading wind stand against it, without danger of being set on shore on the Tortuga bank. The soundings in this channel run between $36\frac{3}{10}$ and $16\frac{1}{2}$ feet high water, neap tide, and from $39\frac{3}{10}$ to $19\frac{1}{2}$ high water spring tide, upon white sand on the south end, which lasts for about two miles ; then upon rocks and sand for near two miles more ; and end upon white marl, from which they fall upon quicksand to the north of the said channel, and increase in Richmond Bay on a sandy bottom.

The great weight of the sea inclosed within the vast extent of the Mexican gulf is set in agitation by the trade-winds, as is generally agreed ; whereby the famous Florida stream is supposed to be effected, and thence called Gulf stream ; by which nature conduces both to the health and conveniency of that region : but this stream is in reality carried into the gulf of Mexico by these trade-winds, and therein circulates at large ; but at the place
of

of its issue, anxiously compressed by the islands Cuba and Bahamas on one side, and the promontory on the other, is constrained to curb its current suddenly and often, in order to take its vent on the east side of the said promontory at Cape Florida, through the New Bahama channel into the Atlantic ocean, with a N.b.E. direction; which direction at Cape Canaveral, in latitude $28^{\circ} 20' 50''$, it exchanges with a N.N.E. course, in which it continues as far as Charles-Town, from whence it runs with a N.E. turn to latitude 42° and 68° west longitude from London, then E.b.N. to the bank of Newfoundland, and unites, about 40° west longitude from London, with the currents issuing out of St. Lawrence's Gulf, Baffin's Bay, and Hudson's Straits, with which it takes a S.E. departure towards the western islands, probably joins the current setting out of the strait of Gibraltar, and proceeds as far as the coast of Africa, until it falls in with the trade-winds again, and returns, after its rotation in the ocean, to the gulf of Mexico. North and N.E. as also east winds press the Florida stream home to the Atlantic coast, and confine it in a very narrow channel; at which times it runs like a torrent. S.E. and south winds give less motion to the natural current of the stream, because

cause it then runs in its natural channel, is wider, as also distant from the shore, on which distance part of the stream returns by an eddy southwardly. S.W. west, and N.W. winds extend the stream still farther into the ocean, consequently beyond its natural eastern boundary; by which its current is but moderate, having that motion diminished, which is caused by the pressure it receives in its confinement between the islands Cuba, Bahamas, and the promontory. For particulars, reference may be had to the Hydrographical Map of the Atlantic Ocean between the English Channel and North America, terminating at the Martiers; where the stream, according to the interceptions of winds contrary to its assumed regular course, and by reason of its sudden changes in its profection on the promontory from S. to S.E. to E. to N.E. and at Cape Florida to N.N.E. and in the New Bahama Channel to N.b.E. strikes more or less force on the narrow head of the said promontory, in such manner, that the continent has been, and is to this day, subject to yield its limits foot by foot to the stream. Myself, and people employed by me in this service, have these three years observed many places, where fresh encroachments appear to this effect: even the vast quantity of scattered large old trees, washed out with
their

their roots on all shores of the islands, and out in the shallow sea between the islands and main, testify that they lay on the spot of the former continent and peninsulas, where their genus and species formerly flourished; but none of us, on the many places we frequented, have met with a spot, where the continent has taken possession of limits deserted by the stream. These are testimonies, if not evident proofs, that the stream, not satisfied with its confined sudden turns, endeavours to extend; but does not give up any of its acquisitions, or exchange old possessions in lieu, as seas and rivers are well known to do in all parts of the known world.

This encroachment of the stream has torn these naturally low peninsulas and the continent, at times of inundations, (caused by great gales and hurricanes, aggravated by the accompanying of moon's full and change) into so many subdivisions as are in being under the different names and appellations mentioned above. In the month of September, 1769, happened such an inundation, which then covered the very tops of the highest trees on the peninsula Larga, and the islands Fox, Stephens, Jenyns, and Elliot, with three feet water, experienced to the great damage of the Litbury snow, John Lo-
C rain

rain master ; who, by the N.W. current of the stream, caused by a N.E. gale, was forced over the reef in a shallow sea, bulged, and coming to anchor in Hawke channel over the south end of Elliot, found himself next day on shore, with his anchor among the trees on the said island. The high Martier islands are grounded upon rocks, some grey, some white, and some black and hard as flint: and the low, viz. mangrove islands, are founded on coral rocks, all covered with a rich, but wet soil. The high islands are covered in places with sand, on which little or nothing grows ; in other parts they have a stratum of blueish marl, on which torch, madeira, lignum vitæ, iron wood, sapadilla, manchenill, wild cinnamon, gum elemi, papa, papajos, the white, red, and black mangrove, cotton and grape tree, grape vine, the hicoco plum, the aloes, opuntia, and squilla, flourish in great abundance, in a most agreeable climate, whose summer heat is tempered by the trade-winds, and where the sun's greatest distance permits the termoscope, as I have experienced between latitude 24° and 25° at Christmas day, as also before and after, to rise up as far as 82° . On some of these islands are ponds and wells, in rocks, of exceeding good fresh water ; of which notice is taken in the General Map.

A species of prawns, (shrimps) growing to the weight of five pounds a piece, live in great numbers in the holes of the coral rocks, on the mangrove islands: these shrimps are by the West-Indians improperly called lobsters, although they have not the two claws, as lobsters: they are beautifully spotted with red, yellow, blue, green, grey, and a little black; but they all change into one red colour by boiling: besides them are tortoise in great quantity, viz. the loggerhead, hawk-bill, and green; as also Jew-fish, snappers, groupers, groans, porgus, angel-fish, bone-fish, the bass and hippocampus, near and about the islands; and farther off, in or near the stream, are king-fish, dolphins, bonetoes, albicores, cavallos, baracutas, red hog-fish, Spanish mackarels, old wives, turbot, sucking-fish, bats, (commonly called devil-fish) sharks, and bottle-nose porpoises.

None of the islands is inhabited by any of the human species, but constantly visited by the English from New Providence, and Spaniards from Cuba, for the sake of wrecks, madeira wood, tortoise, shrimps, fish, and birds: of the latter a variety exist on the islands and about Cape Sable, amongst which is peculiarly a large red bird, which measures six feet from the toe to its bill's end, (which is crooked, and has its maxillary motion on its upper part, as on that

of a parrot) and is called flamingo ; besides small deers, bears, racoons, and squirrels. The shoals, especially Sombreros, south of Fitzherbert, and the Shoal Loup, (thus called, from the Loup man of war being lost thereon) south of Roberts, which shoals border upon the Florida stream, distinguishing themselves by shewing their sand-hills above water (visible at four and five miles distance) evidently appear to be the remnant of the southern peninsula torn first into islands ; which, deprived of their natural products, inhabitants and rich soil, retain only at this time their barren sand-cover over their rocky foundation ; from which I reasonably conclude, that the rocky reefs are of the number of those islands formed by force of the stream out of the southern peninsula above mentioned, but washed clean of all that the violence of the stream could move thereon, and remain awful and dangerous wharfs in that sea, to the great prejudice of the many vessels wrecked thereon in times past, and almost weekly to this day : these rocks in some places project, in others level the surface of the sea ; nevertheless they fathom, in their intervals, from eighteen to forty-eight feet water, so that vessels have crossed these reefs on those intervals without touching.

ing. I have observed in my surveys of the Martiers, that the Florida stream, at its regular seasons, and uninterrupted course in fair weather, forms a remarkably visible glazed line of division, but in many places out of sight of any land; without which line the stream appears in some places as blue boiling water, in others bursting and fermenting like cataracts, even at times of the greatest calms, besides being fathomless in these very spots; and within the aforesaid line is an eddy quite smooth, changing gradually as it approaches Hawke channel and islands, from the stream's deep blue, to a beautiful sea-green, and at last into a milk-white. The soundings under the blue-coloured water are on fine white marl; under the sea-green, on the said marl, with sponge, white coral, sea-feathers, tortoise-grass, and sometimes banks of rocks; and under the white-coloured water, the soundings are on white marl, with banks of rocks, or white sand: this eddy takes its current in an opposite direction from that of the contiguous stream, viz. south-westwardly.

The soundings in the eddy (N. B. in case no reef is in the way) between the stream and Hawke Channel run from two hundred and eighty to sixteen

teen feet ; and where reefs and shoals divide the stream and Hawke channel, the soundings in some places are, from bottomless, at once sixty-eight feet.

After these discoveries, vessels may with safety avoid hereafter the eddy, or make allowance for it in their calculations ; that is, if they cannot help falling into the eddy, (after they have taken all precautions by sounding in blue water, and, when they had bottom, stood off) they will naturally subtract what longitude they make in the eddy from what they had made in the stream, and begin a new departure ; be precise in their morning and meridian observations ; and when they find themselves with $6^{\circ} 25'$ east variation, in latitude 24° , which is nearest Hueso island, the Sombreros, Loup Shoals, Holborn and Dartmouth inlets, they are to make an east offing of a hundred and forty miles : if with $7^{\circ} 30'$ east variation, in latitude $24^{\circ} 40'$, which is nearest Matance and Spencer inlet ; to gain an east offing of sixty miles : when with $6^{\circ} 30'$ east variation, in latitude 25° , which is nearest Tabona, now Stephen Island, and Palmerston inlet ; then to try for an east offing of thirty miles before they stand north for the New Bahama channel : but in case they are with 6° east variation, in latitude

25°

25° 40', which is nearest Cape Florida, and to the north of all reefs, they need no offing, provided they see no land to the westward.

Many vessels, bound through the New Bahama channel, were lost in fair weather: unacquainted with the stream's eddy, and of soundings being under blue water, they were swept insensibly by the eddy to the westward; and when they found by their calculations that they had a good offing east of Cape Florida, stood north, and in lieu of entering the New Bahama channel, run strait upon a reef.

As the meridian observations south of latitude 25° 40' are no direction, and the morning or evening observations useless, as long as the variations of the compass on the different places of the promontory have not been heretofore known; I have therefore, with the greatest care, taken the variations on Cape Florida, the Matance, and Hueso, by morning amplitudes, which on this promontory are the surest; for the evening observations, as I have experienced on places where I could have both in one day and on one spot, do not so nearly agree with a meridional operation, (I make use of at times) which, though very tedious, is however infallible.

I mentioned before what effect the different winds have upon the Florida stream. I think it necessary to observe now, that this stream is also subject to an alteration from another cause; by which, as well as by the winds, it is either pressed on or off the coast, viz. by the full and change of the moon, which, according to its position, has all the different effects upon the stream, however not in equal power with those of the winds; and the disposition of the stream is increased to its superlative, if the effects both of the winds and moon are combined; for at this time the natural zimosis of the ocean rises highest: this zimosis regulates the flood and ebb, and divides them in proportionate times, and consequently directs and increases them, with the assistance of easterly moons and winds, to the west, and, of westerly moons and winds, to the east; so that the west and east shores are at times deprived of, and at other times overflowed by tides, occasioned by these vicissitudes.

The boisterous east, N.E. and north winds begin generally in September, and continue during the season when the sun is in the south, viz. until March, at which time these winds generally end with a gale or hurricane, if the moon's
full

full or change falls in with the season: if then vessels happen to be in the mouth of the Gulf of Mexico, that is, between the Havanna and Cape Florida, they had best endeavour to make the Bahama islands, or at least the soundings of them, and proceed under their lee side; but when they are to the north of them, to keep in the eastern extent of the stream, or else they will not be able to clear their way through the New Bahama channel, nor along the coast of East Florida: either go on shore of the reefs, Cape Florida, or Cape Canaveral; if not, upon the beach between both capes, or to the northward of them, which is the least evil of the two; for thus the crew and cargo may be saved; and some vessels may also be brought off, provided the storm ceases before the vessel is made a wreck of. But if, at the time of the south sun, or at any other time, the winds are westwardly, then the Atlantic coast affords the most eligible lee for navigators who do not choose to take the stream.

Two instances of the same nature I experienced, one in February, the other in December 1770, viz. December 25, then moon's change: being in the Gulf stream, in the morning I made Fox, alias Rodrigues island, stood in for the Carys-

D

fort

fort reef, fell in very soon (after I had sight of the said island) with the stream's eddy ; and it was then, by the land, very visible how much I was swept to the south-westward by the eddy : at noon was opposite the Matance ; in the evening almost lost sight of it : all this time I was becalmed till five o'clock in the evening : when the wind came from the north-eastward, I stood E.S.E. with which course I took my departure from the Matance (still a little visible) out of the eddy into the stream, run all night at the rate of five knots until four o'clock in the morning of the 26th, when the wind shifted to the east : sure of being twelve miles east of Cape Florida, besides allowing for current, I suffered my master, Mr. Charles Yonge, to lay the vessel N.N.E. for the New Bahama channel ; about eleven discovered land, which by the meridian observation, as well as by approaching it nearer to sight, proved to be Cape Florida, which with a southwardly wind would have been an agreeable aspect : finding the Florida stream setting north-westwardly on shore, and on our weather-side, attempted to tack to the S.S.E. but soon discovered that both wind and current hurried us towards the north end of Biskaina reef ; stood N.N.E. again, but having upon both tacks wind
and

and current joining on one side, was swept so near the land, that no more than a fifteen minutes run would have set a period to my navigation. My master ran to the helm, set the vessel about to the S.S.E. a second time, which however would only have determined our catastrophe upon the reef; whereas, on the other hand, the N.N.E. tack would have brought us to the beach of the cape; for the main and reef bore N.N.E. and S.S.W. the vessel lay with its larboard tack parallel with the main: the current from the S.E. bearing upon the weather-quarter, afforded no room for lee-way between the vessel and main; and the vessel with her starboard tack, although she lay four points from the reef, because the current was setting upon the weather-bow, had the reef at the end of her lee-way; but that very instant the wind shifted to the E.N.E. which brought the stream in a narrower channel home to the main, and changed the N.W. into a N.N.W. current of course under the lee-bow of the vessel, besides laying six points from the reef: was now able to obtain a sufficient offing, and gained the lee of the Bahamas. All that night, and ever after, until December 29, the wind waved between north and east, during which time I had

had much ado, by frequent south-eastwardly tacks, to regain the eastern extent of the stream, in order to beware of Canaveral shoal and the coast of East Florida. I should not have enlarged these discoveries with the preceding particular narrative of my adventure, had I not thought it a circumstance which might serve the better to explain what observations and discoveries I have premised : besides, as I am determined at any time, (if it should be my lot to fall in with the above seasons in that sea) to make my offering good in the soundings of the Bahamas, this obliges me to communicate my reasons and judgment in these critical cases to the world, for the benefit of those who are bound from the Havannah on Cuba to the Atlantic ocean, having 183 miles northing, 127 miles easting, and a distance of 223 miles to clear on a course of N.E.b.N. northerly, with a current which will set the vessel about $3\frac{1}{4}$ points to the eastward. A due north will be the most eligible position for a vessel departing from the Havannah, in order to make Cape Florida and the mouth of the New Bahama channel.

After this necessary digression, I return to the antient state of the promontory, and the effect of the stream, by
which

which the above-mentioned river, now Grant's, terminating in Lloyd's lake, is intirely filled up with the soil torn from both the main and northern peninsula; so that a passage north-eastward of the Matacombes, to communicate between the Martier islands, the main, and peninsula Larga, has not as yet been met with, for even a vessel of three feet draught. I was obliged to employ a battoe and yawl, of not above nine inches draught, to perform the survey thereof. The river between the two peninsulas, now Hawke channel, affords a very safe communication between the Martier reefs, shoals, and islands; as also a safe reception for vessels in distress, finding their way through the inlets, which I will specify hereafter. This channel has upwards of forty-five feet water, and not less than $14\frac{1}{2}$ feet in the shallowest places, of which the first is opposite Elliot's south and Jenyns's north points, in latitude $25^{\circ} 18' - 30'$, and the second opposite the north point of Larga, in latitude $25^{\circ} 18'$.

Hawke channel has eight out and inlets, safe communications from the Florida stream, through the reefs and shoals, of no less than eighteen feet water; the first in latitude $25^{\circ} 35' 16''$ N.W. from the south point of Bilkaino island, called
Keppel

Keppel inlet; the second, called Buller, opposite Elliot, bears due east and west between Biskaino and Litbury reefs, in latitude $25^{\circ} 28' 31''$; the third, called Palmerston, between Hays and Matance reefs, bears due east and west from and to Tabona, now Stephen island, in latitude $24^{\circ} 56' 35''$: (N. B. fourteen miles north of this inlet his majesty's ship the Carysfort was run, by the pilot, upon the reef now known by the Carysfort's name, the 23d of October, 1770, and was brought off by the master, Mr. Hunter's skill and diligence, and is the first vessel, to my knowledge, which got clear): the fourth inlet, called Spencer, is about eight miles wide, between Matance and the last of the Viveres reefs, in latitude $24^{\circ} 42' 30''$, opposite the island Matance; the fifth, called Wallace, south of the southernmost of the Vacas islands, and the south end of Bonetta reef, in latitude $24^{\circ} 32' 30''$; the sixth, called Lisburne, S.E. of Edwards's islands, in latitude $24^{\circ} 27' 30''$; the seventh, called Dartmouth, six miles and a half to the eastward of the Loup, S.b.E. of Robinson's island, and E.b.S. of Huntingdon's harbour, in latitude $24^{\circ} 27' 16''$; the eighth and last, called Holburne inlet, is west of the Sombreros, and south of Egmont channel,

in

in latitude $24^{\circ} 20'$. Besides these out or inlets, are three passages through the Martier islands into Richmond bay, for vessels of little draught to shorten their voyage to and from Pensacola: the northernmost, called Onslow, has its inlet on the south of Matacombe la Viega, in latitude $24^{\circ} 45'$, opposite Spencer inlet, runs on the south of the islands Jenkinson, Dysons, Townshends, Coopers, and Bradshaws, (alias Sandy Key) and under the north of Viyera, has six feet water in the shallowest places: the next, Gordon, in latitude $24^{\circ} 35'$, enters through the Vacas, viz. by the east end of the last westernmost but one, N.b.E. of Wallace inlet, runs north of Ellis; and its shallowest water is $8\frac{1}{2}$ feet: the third passage, called North, in latitude $24^{\circ} 33'$, inlets east of Jennings island, N.b.E. of Dartmouth inlet, and W.b.N. of Litburne inlet, and runs on no less than six feet soundings under the N.E. side of Newcastle island. But vessels of eleven or twelve feet draught, taking Hawke channel, bound to or from Pensacola, or its contiguous places, must cross the Martier islands through the more southern passage, called Egmont channel, of which I have advanced fully what was necessary: I will therefore conclude with the direction through Egmont channel,

channel. The south-westernmost point of Huefo is remarkable by the rocks thereon, mostly above water: vessels from the southward in the stream stand in through Holburne inlet; as also vessels coming down Hawke channel, after clearing the said rocky point in Huefo, stand in due north half a mile to the west of Huefo, and run up until they bring the said rocky point to bear S.S.E. a-stern, then lay N.N.W. and pursue that course until the shoals both of Huefo and Tortugas are cleared; from which time they will soon increase their water, as they advance in Richmond bay: vessels again coming from the northward of the gulf may see the said rocky point, when within $16\frac{1}{2}$ feet soundings before the Tortuga and Huefo banks draw up both sides of the channel, whence they bring the rocky point in a S.S.E. direction a-head, and follow that course (consulting eye and lead) until they shut up the two points of the first small bay on the north side of Huefo; then come to a safe anchor, or stand due south out through Holburne outlet into the stream, with which they will meet after four knots run, provided they chuse the outside of the shoals and reefs of the Martiers; but in case they chuse the inside of the shoals and reefs through Hawke channel, then
clear

clear the rocky point with a south course of a full half-mile's run; and draw up E.b.S. along the south shores of the islands Huefo, Fitzherbert, &c. farther keeping an offing, from the islands in general, of a league parallel to the range of them all, (consulting eye and lead) will meet with the best water to anchor every evening, and to proceed as far as Biskaino island, where without difficulty, if the wind is westerly or southerly, they may run into the Florida stream, which is there in sight. Before I conclude, I think it necessary to observe, that flood and ebb keep equal tides upon the Atlantic coast as far south as Oswald, Laurence, Paradizos, Soldiers, Knox, and Pollock islands, where it floods seven hours and ebbs seven, after which it floods five hours and ebbs five: at the Matance island, or Spencer inlet, it never keeps any regularity; and so on as far as Huefo.

F I N I S.

Having observed the different Variations of the Compass from the *Dry Tortugas to Cape Florida*, I hope, adding to the Conclusion of these Observations all Variations as far as I have traced them to the Northward, and across the Ocean to *Europe*, will not be an unnecessary Supplement, viz.

<i>W. Longitude from London.</i>			<i>Latitude.</i>			<i>Variation.</i>			<i>Bottom and Situation.</i>	
°	'	"	°	'	"	°	'	"		
81	0	0	26	50	0	5	24	52 E.	at Grenville, alias Jupiter's inlet.	
Ditto			27	20	0	4	0	0 E.	near Hillsborough, alias Ays inlet.	
Ditto			27	40	0	2	0	0 E.	about Spanish Admiral creek.	
81	30	0	28	20	0	no variation			south of cape Canaveral.	
81	40	0	28	40	0	2	0	0 E.	near Muskito inlet.	
82	20	0	29	40	0	5	59	0 E.	at St. Augustine.	
82	30	0	30	10	0	6	47	0 E.	at the mouth of St. Juan's.	
82	39	20	30	30	0	1	35	0 E.	at the mouth of St. Mary's.	
80	42	43	32	40	0	2	42	0 E.	at Charles-Town.	
77	30	0	33	30	0	1	30	0 E.	at sea in the soundings.	
75	0	0	35	30	0	no variation			in the Gulf stream.	
73	0	0	37	0	0	3	0	0 W.	in ditto.	
71	30	0	38	30	0	5	0	0 W.	in ditto.	
66	42	0	39	0	0	8	30	0 W.	in the ocean.	
57	0	0	41	0	0	9	0	0 W.	in ditto.	
53	30	0	42	0	0	10	0	0 W.	in ditto.	
46	30	0	42	20	0	11	0	0 W.	in ditto.	
43	10	0	43	40	0	12	0	0 W.	in ditto.	
40	30	0	44	30	0	13	0	0 W.	in ditto.	
30	0	0	45	30	0	14	0	0 W.	in the Gulf.	
32	50	0	46	28	0	15	0	0 W.	in ditto.	
29	40	0	47	29	0	16	0	0 W.	in the Ocean.	
28	40	0	48	0	0	17	6	0 W.	in ditto.	
19	39	0	49	22	0	18	0	0 W.	in ditto.	
12	30	0	49	40	0	18	30	0 W.	in ditto.	
										<i>Soundings.</i>
12	44	3	49	36	0	ditto			150 fath.	very soft bottom scarce perceptible, white sand.
9	17	54	46	36	0	ditto			75 ditto.	on middling soft bottom, fine grey sand, pieces of pearl-mother, and red specks.
7	50	13	49	0	0	ditto			65 ditto.	hard bottom, coarse grey sand, small black stones, broken yellow and saw-dust-like shells.
6	31	46	49	0	0	ditto			70 ditto.	hard bottom, grey fine sand, broken pearl-mother, yellow shells and white pebbles.
6	58	46	49	15	0	ditto			70 ditto.	hard bottom, coarse grey sand saw-dust-like, and large broken, with small whole shells.
5	1	0	49	5	0	ditto			60 ditto.	on very hard bottom, coarse yellow sand, and large broken shells.

Opposite the coast of Ireland.

